


Bacterial isolates, media and culturing conditions

JH Jiliang Hu JG Jeff Gore

Updated date: May 26, 2023

 An abbreviated version of this protocol was published in Science in Oct 2022

Emergent phases of ecological diversity and dynamics mapped in microcosms

DOI: [10.1126/science.abm7841](https://doi.org/10.1126/science.abm7841)

Detailed protocol

We constructed the library of 48 bacterial species using 24 bacterial isolates from soil samples taken at Middlesex Fells Reservation in Somerville, Massachusetts, and 24 isolates from the *C. elegans* intestine. This library is phylogenetically diverse, with isolates coming from 26 different families among 4 phylums: Proteobacteria, Firmicutes, Bacteroidota and Actinobacteriota (Fig. S13, 14).

In the case of low interaction strength (low nutrients concentration) conditions, experimental communities were cultured in Base Medium (BM): 1g^L⁻¹ yeast extract and 1 g^L⁻¹ soytone from Becton Dickinson, 10 mM sodium phosphate, 0.1 mM CaCl₂, 2 mM MgCl₂, 4mg^L⁻¹ NiSO₄ and 50 mg^L⁻¹ MnCl₂, pH adjusted to 6.5. For intermediate interaction strength (medium nutrients concentration) conditions, we used BM supplemented with 5 g^L⁻¹ glucose and 4 g^L⁻¹ urea. For the high interaction strength (high nutrients concentration) condition, we used BM supplemented with 20 g^L⁻¹ glucose and 16 g^L⁻¹ urea. All media were filter sterilized using Bottle Top Filtration Units (VWR). All of the chemicals were purchased from Sigma–Aldrich unless otherwise stated.

Both monocultures and communities of the bacterial isolates were grown in 96-deepwell plates (Deepwell plate 96/1000μl; Eppendorf) covered with AeraSeal adhesive sealing films (Excel Scientific). The incubation temperature was 30 °C for all communities. The deepwell plates were shaken at 1,200 r.p.m. on Titramax shakers (Heidolph). To minimize evaporation, the plates were incubated inside custom-built acrylic boxes.

How to cite: (Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

1. Hu, J. and Gore, J. (2023). Bacterial isolates, media and culturing conditions. Bio-protocol Preprint. bio-protocol.org/prep2321.
2. Hu, J., Amor, D. R., Barbier, M., Bunin, G. and Gore, J.(2022). Emergent phases of ecological diversity and dynamics mapped in microcosms. Science 378(6615). DOI: [10.1126/science.abm7841](https://doi.org/10.1126/science.abm7841)

Copyright: © 2023 The Author(s); This is an open-access article under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>).